Coronary Heart Disease (CHD) Brief

What is Coronary Heart Disease?

Coronary Heart Disease (CHD), also called coronary artery disease[1], is the most common heart condition in the United States. It occurs as a result of atherosclerosis – when the coronary arteries that supply blood to the heart harden and narrow due to plaque buildup. Atherosclerosis can impede the blood flow to the heart so much that death of the heart muscle occurs from lack of oxygen. When this occurs, it is called a heart attack or myocardial infarction, and may result heart arrhythmia (irregular heartbeats), heart failure, and sudden cardiac death.

CHD is the single leading cause of death in the United States, and accounted for 68% of deaths due to all heart disease in 2005.[1] Approximately 1.2 million people in the United States suffer a new or recurrent heart attack each year, and nearly half (47%) die before they receive emergency services.[2]

In addition to heart attacks and sudden cardiac death, CHD causes other problems, and can result in other poor health outcomes, such as high blood pressure, high (bad) cholesterol, stroke, and angina pectoris (chest pain or discomfort due to reduced blood supply to the heart). When individuals have certain other diseases, such as diabetes, they have an increased risk of dying from CHD.

Risk Factors for Coronary Heart Disease

Demographic Risk Factors

- *Race / Ethnicity*
- *Genetics or Family History*
  - The risk of CHD increases 2 to 3 times if a close relative has the disease.[3]
- *Age*
  - The risk of CHD, heart attack, and stroke increases with age.[4]
  - About 82% of people who die from CHD are 65 years or older.[5]
- *Gender*
  - Men are more likely to die from CHD than women.[2]
- *Socioeconomic Status*

Social and Behavioral Risk Factors

- *Tobacco Use*
  - In the United States, 25 million men and 21 million women have an increased risk of heart attacks and stroke because they smoke cigarettes.[4]
  - Nationally, the risk of developing CHD is two to three times higher among smokers than non-smokers.[5]

- Smoking-related CHD may contribute to congestive heart failure, and smokers who have a heart attack are more likely to die and die suddenly (within an hour) than nonsmokers. [6]
- Smoking cigarettes contributes to the development of atherosclerosis.[6]

- *Alcohol Abuse*
- *Lack of Physical Activity*
  - Physical inactivity contributes to CHD and to other CHD risk factors such as high blood pressure, high triglycerides, low levels of HDL (good) cholesterol, and diabetes.[7]
  - About 66 % of Americans over the age of 20 were overweight or obese in 2007.[4]
- *Poor Nutrition*
- *Poor Medical Care*
- *Stress, Depression*

Intermediate Outcomes

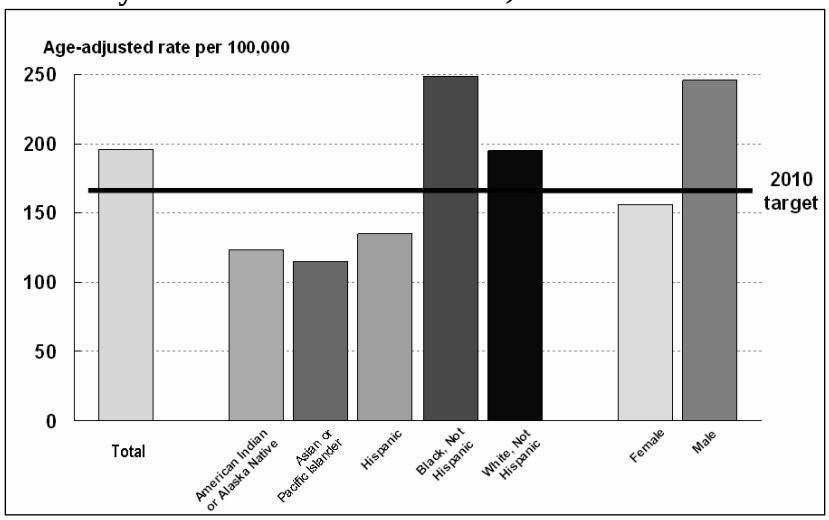
- *High Blood Pressure* (BP ≥ 140mm Hg/90 mm Hg)
  - Having high blood pressure directly increases the risk of coronary heart disease, especially when it is present with other risk factors.[8]
  - Annual estimates of prevalence for 1999-2004 showed that 72 million Americans had high blood pressure.[4]
- *High Blood Cholesterol*
  - In 2007, approximately 37 million American adults had cholesterol levels above 240 mg/dL, the threshold at which it becomes a major risk factor for CHD.[4]
- *Angina Pectoris*
  - Approximately 8.9 million Americans have angina pectoris (chest pain or discomfort due to reduced blood supply to the heart.[4]
- *Diabetes Mellitus*
  - In the United States, approximately 3 of every 4 diabetics die from heart disease.[7]
- *Stroke*
  - A diseased heart increases the risk of stroke.[5]

National Statistics and Disparities

Statistics

- In 2007, the American Heart Association estimated that approximately 1.2 million Americans had a first or recurrent heart attack, and that approximately 452,000 died.[4]
- Nearly 4 of 10 American adults (18 years and older) had two or more risk factors for CHD in 2003.[9]
- CHD was listed first in as the reason for 1,981,000 hospital discharges in 2004.[1]
- From 2000-2006, Mississippi had the highest heart disease death rate, while Minnesota had the lowest[1].

Coronary Heart Disease Death Rates, 2000[10]

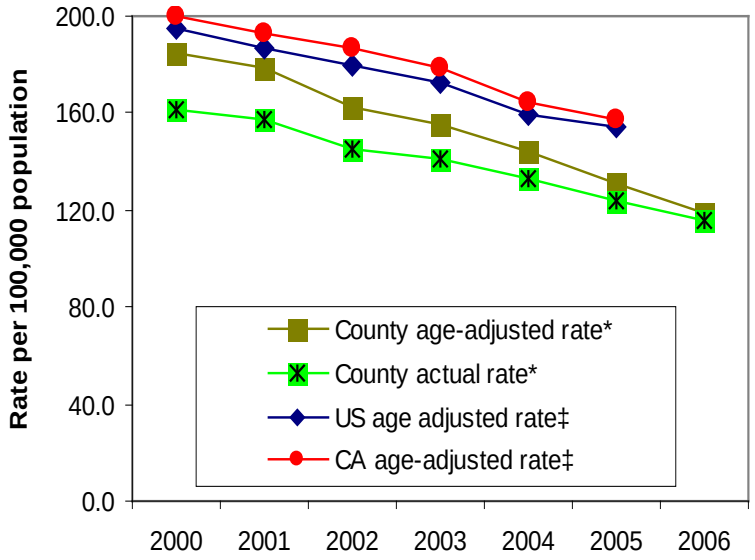


U.S. Department of Health and Human Services. Healthy People 2010 Focus Area 12: Heart Disease and Stroke. Progress Review: April 23, 2003. Center for Disease Control and Prevention. National Heart, Lung, and Blood Institute.

- *Race/Ethnicity*
  - In 2000, although more whites died (in number), blacks had the highest rate of death from CHD than all other races in the United States.[10] Asian/Pacific Islanders had the lowest risk of dying from CHD than all other races, and American Indian/Alaska Native and Hispanics also had lower death rates than black or white Americans.[10]
  - Over a ten-year period, black women had a significantly higher risk of CHD than white women after controlling for age, education, and BMI.[11] Black Americans are also more likely than white Americans to have high blood pressure, which is a major risk factor for CHD.[1]
- *Gender*
  - In 2000, more men died from CHD than women, and in 2003, men were more likely than women to have ever been told they had coronary heart disease.[12]
  - Nearly half of men and a third of women over age 40 will have CHD.[5]
  - The incidence of CHD in women lags behind men by ten years for total CHD, and by 20 years for heart attack and sudden death.[5]
- *Cost*
  - Heart disease is projected to cost over $300 billion due to both direct and indirect costs in 2009.[1]
  - In 2004, the average length of stay for an individual entering the hospital for CHD complications was 4.3 days.[1]

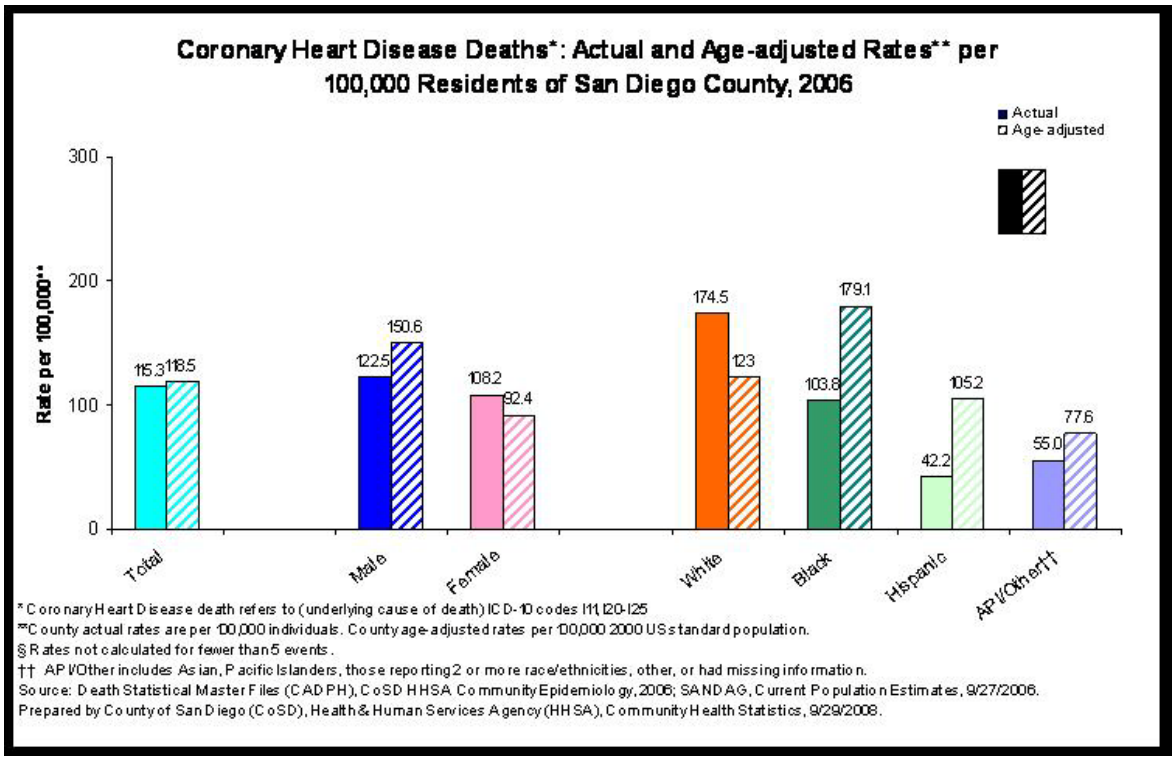
Local Statistics and Disparities

National, State and Local Coronary Heart Disease Death Rates, 2000-2006

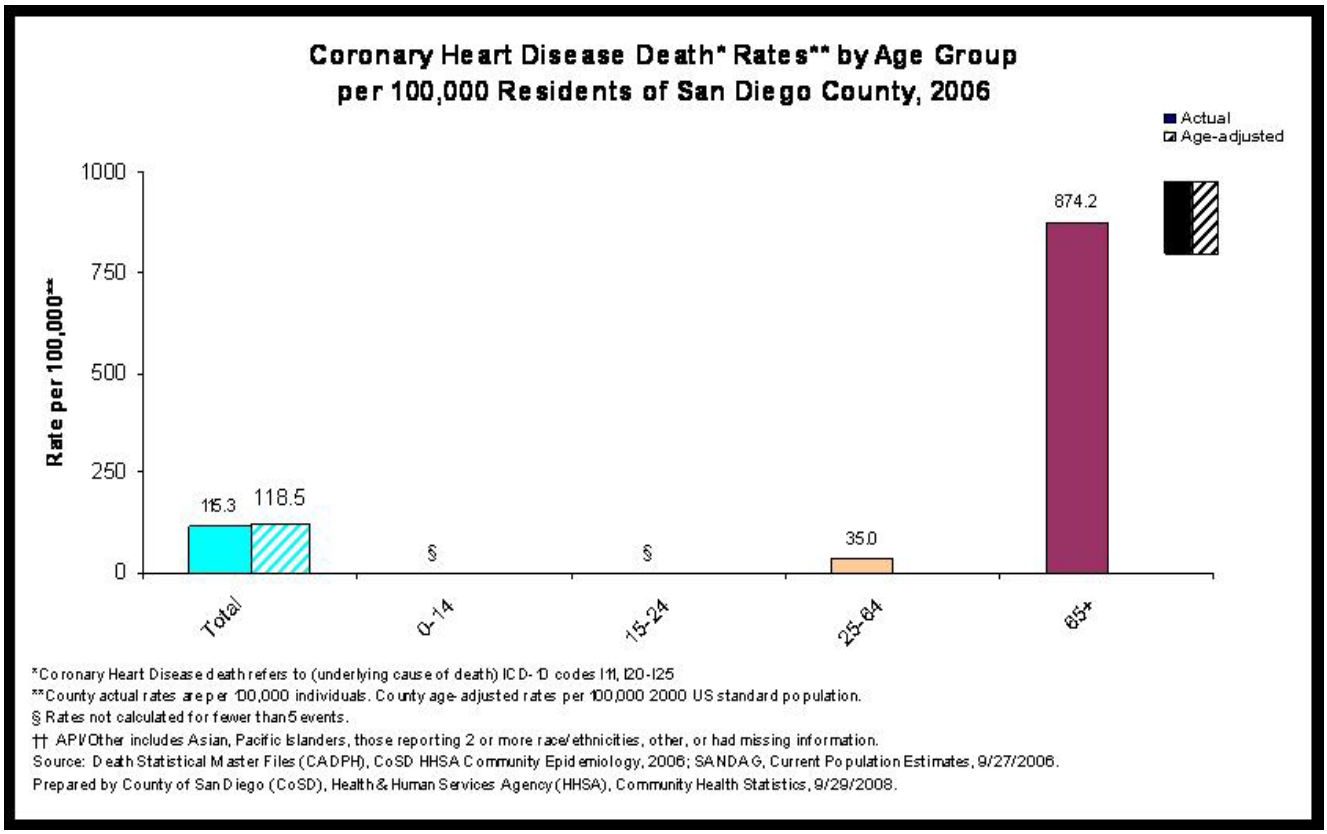


* Sources: Death Statistical Master Files (CA DPH), CoSD, HHSA, Community Epidemiology 2000-2006; SANDAG, Current Population Estimates, 9/27/2006.
‡ Source: CDC, NCHS, Compressed Mortality Files. On-line database accessed 2/23/2009: http://wonder.cdc.gov/cmf-icd10.html.

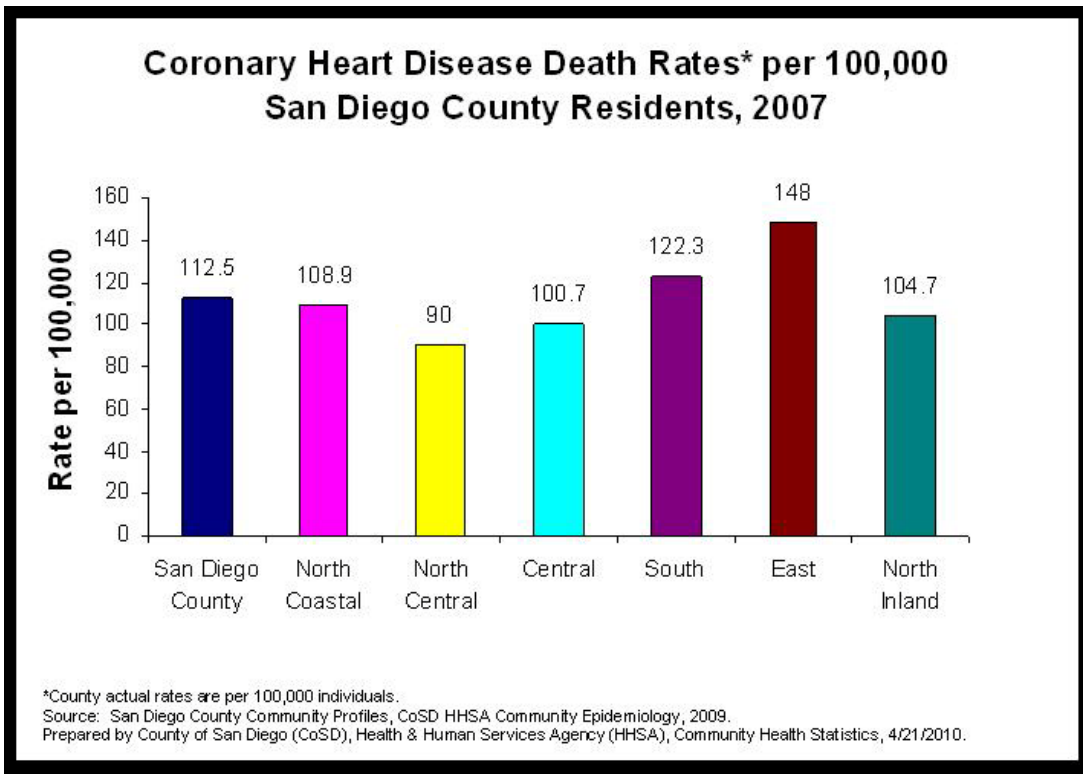
- Death rates from CHD have been declining since 2000 at the national, state and local levels. In San Diego County, both the actual and age-adjusted coronary heart disease death rates were below the National and California rates from 2000 through 2006.[13]
- On average, 4,116 residents of San Diego County die from CHD every year.[13]



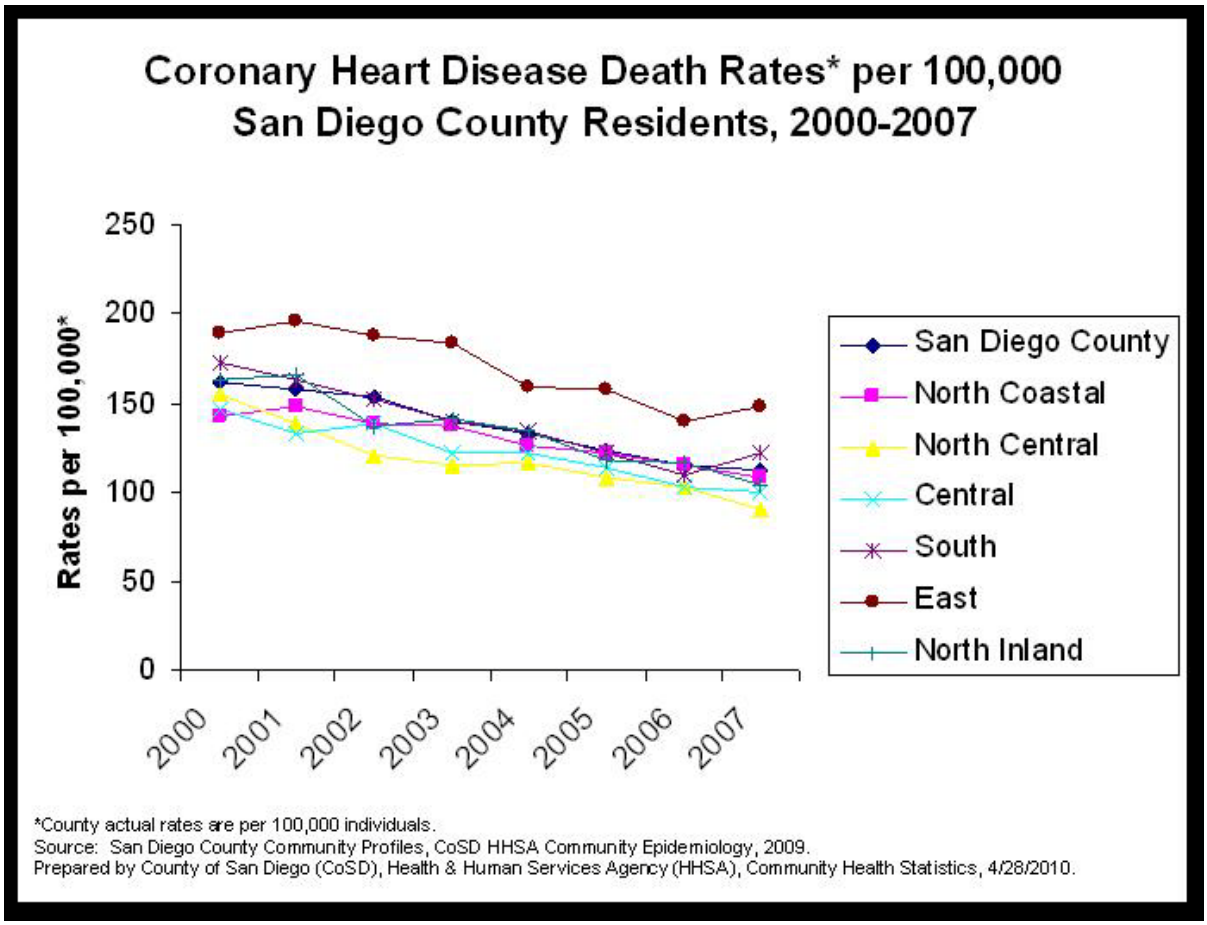
- The 2006 age-adjusted death rate from CHD in San Diego County was 118.5 per 100,000 residents.
- By gender, males had a higher death rate than females (150.6 per 100,000 versus 92.4 per 100,000).
- Black residents had the highest age-adjusted CHD death rate, 179.1 per 100,000, followed by whites (123.0 per 100,000), and Hispanics (77.6 per 100,000). Asian-Pacific Islander (API)/Other residents had the lowest rate of CHD death (77.6 per 100,000).[13]



- In San Diego County in 2006, residents aged 65+ years had a death rate from CHD (874.2 per 100,000) that was approximately 25 times higher than that of residents aged 25-64 years (35.0/100,000).[13]



- In 2007, the East region of San Diego County had the highest coronary heart disease death rate, while the North Central region had the lowest.



- From 2000-2007, the East region of San Diego County has had the highest coronary heart disease death rates.

CHD and Its Complications: Prevention for Individuals

- *Don't smoke*
- *Be Physically Active*
  - Aerobic exercise is an important non-pharmacologic intervention for improving CHD risk factors.[14]
- *Eat Healthy Foods*
  - Foods high in saturated fat, trans fat, and cholesterol contribute to atherosclerosis.[5]
  - Consuming too much salt can cause high blood pressure in some people. [5]
- *Monitor Weight*
  - Obesity is a major risk factor for CHD. [5]
- *Avoid Excessive Alcohol Consumption*
  - Over-consumption of alcohol can lead to obesity.[5]

- Drinking too much alcohol can raise blood pressure, cause heart failure, and lead to stroke.[5]

- *Have Regular Doctor Checkups*
  - Major risk factors such as smoking, elevated cholesterol or blood pressure, excess weight and diabetes need to be identified and monitored by a physician.[4]
- *Control Cholesterol Levels*
  - Blood cholesterol level can be controlled through diet, exercise, weight loss, and/or drug therapy. [4]
- *Monitor Blood Pressure*
  - Blood pressure should be checked at least every two years if there is a history of HBP.[5]
  - Reducing systolic blood pressure by 12-13 mm Hg over four years can reduce the risk of CHD by 21 percent.[15]
- *Control Diabetes*
- *Know and Recognize the Major Symptoms of a Heart Attack*
  - The five major symptoms of a heart attack are:[4]
    - Pain or discomfort in the jaw, neck, or back,
    - Feeling weak, light-headed, or faint,
    - Chest pain or discomfort,
    - Pain or discomfort in arms or shoulder,
    - Shortness of breath.

- *If you think that you or someone you know is having a heart attack, call 9–1–1 immediately.*

Prevention Tools for Public Health Professionals: CHD Critical Pathway

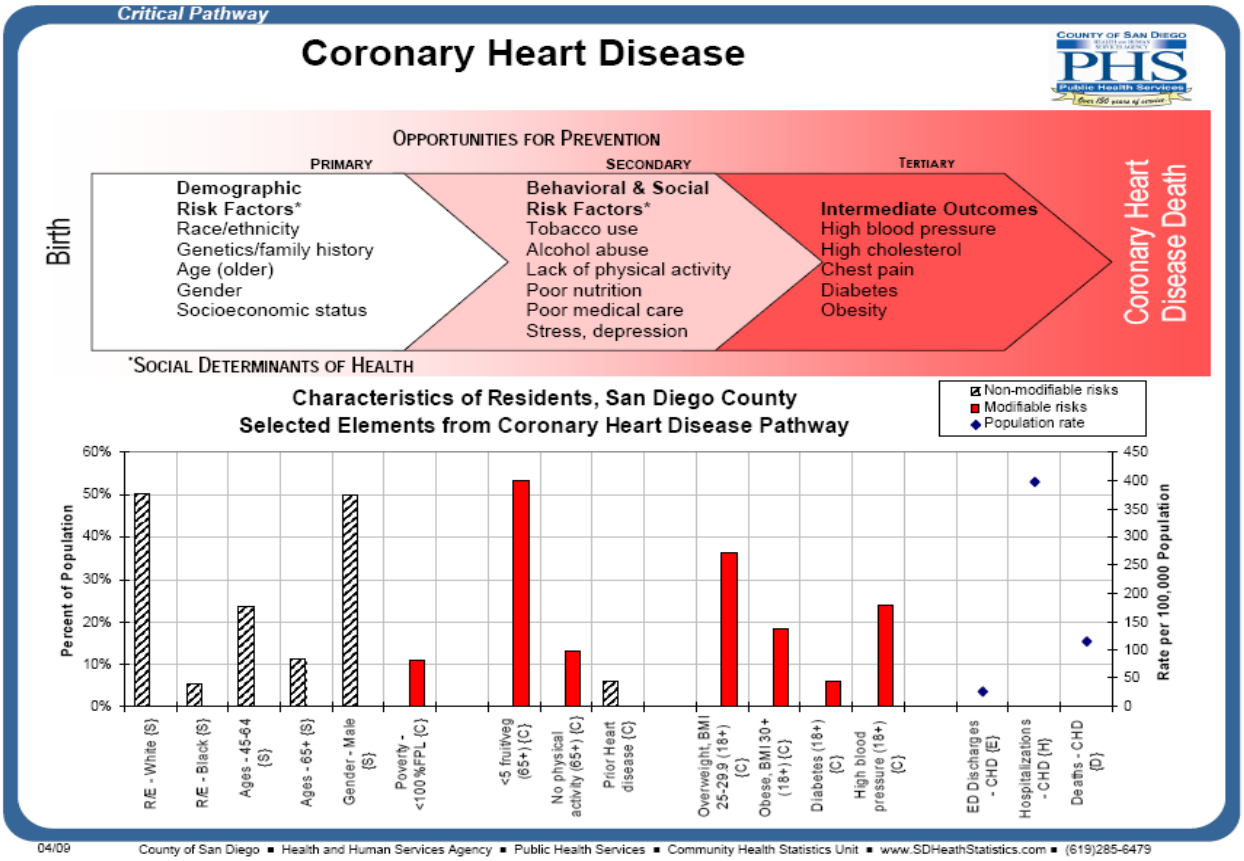
There are many opportunities for public health professionals in the community to help reduce the risk of CHD and to improve the health outcomes of individuals who already have the disease. To assist in community health efforts, a *CHD Critical Pathway* was developed.

The *CHD Critical Pathway* is a tool to be used in health promotion and disease prevention efforts. Its purpose is to identify populations at greater risk for CHD, and to identify prevention and early intervention opportunities. The *CHD Critical Pathway* displays a diagram of the major risk factors and intermediate outcomes or related diseases that have an impact on, or result from, CHD. Risk factors are marked as non-modifiable (black striped bars) such as race/ethnicity or gender and modifiable (solid colored bars) such as physical activity or high blood pressure.

Beneath the risk factors diagram is a data grid describing the San Diego resident population in relation to selected elements of the pathway. The data grid is designed to assist in quick identification of opportunities for interventions that might have a high impact on a particular disease. The data represent all San Diegans, not only those with a particular disease. The left axis (bar) indicates the percent of the population with a known risk factor or intermediate outcome. The right axis (diamond) indicates the rate of a particular medical encounter within the population that is specified. The data are described fully described fully in the complete version of the *Critical Pathways.*[16]

In addition, the Community Health Statistics Unit website (www.SDHealthStatistics.com) provides detailed demographic, health and facility data including maps of geographically formatted health data. Also available are links to other County data sources, state and national sites of interest. For further assistance with data or interpretation, please contact the Community Health Statistics Unit.

CHD Critical Pathway to Disease.



Data Sources

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